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## BEVERAGES

## BREWING NOTES.

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Distillers' Method of Fermentation.



IN our previous issue we detailed the method of mashing common with the majority of distillers of the present day; we now proceed with the method of fermentation, dropping one hint so far as yeast is concerned in connection with the qualities which determine the value of alcoholic liquids. Following our preceding remarks, we mentioned that the collected gravity of the wash stood at 1033-1035, and that for each back of about 13,000 gallons of wash  $4\frac{1}{2}$  cwt. of pressed yeast was employed. Now, the yeast employed by the firm in question was a mixture of various types, which we here designate as No. 1, 2, 3, and 4, and it being well known to almost every reader what are the effects which would be produced if a brewer were to attempt to employ different types of yeast for pitching purposes, so it is understood by every distiller that the flavouring substances in spirit exist in such minute quantities that very slight variations in the type of yeast employed may, under certain conditions, produce marked differences in the character of the resulting products; and it has been pointed out that it is difficult, in fact, in many cases impossible, to detect the varieties by microscopical examination alone; it is only by watching the method and speed of reproduction and growth, and the products of their life-action, that the particular types may be differentiated with success. The temperature aimed at for pitching is about  $78^{\circ}$  F., but we find this to vary between  $77^{\circ}$ - $80^{\circ}$  F.; this is, however, perfectly understood when we point out that alcoholic fermentation proceeds most favourably at temperatures between  $60^{\circ}$  and  $90^{\circ}$  F. The yeast is generally added at the commencement of collection, since it is well known that the prevention of the formation of lactic and acetic ferments is a necessary desideratum in order to produce a preponderating amount of alcohol, and that, according to the amount of lactic acid, so is the diminution of the spirit, since the lactic acid formation is at the expense of sugar which should be converted into alcohol. Then, again, the acetic formation destroys the alcohol already formed by the alcoholic ferment, converting it into acetic acid. Therefore a careful study of the life of the various alcoholic and other ferments likely to be present, the promotion of the former and prevention, as far as possible, of the latter, will alone solve the difficulty in connection with the question of fermentation. To show readers how the fermentation proceeded, we give details of observations which we have made as regards temperature and attenuations in four different backs, but readers must understand that in none of the examples was fermentation ended. The asterisks show when the backs were skimmed.

No. 11 BACK.—PITCHED WITH No. 2 YEAST,  $4\frac{1}{2}$  CWT.

Day.	Hour.	Temperature, Degrees.	Attenuation.
1	9 a.m.	77	1033
"	12 a.m.	77	1033
"	3 p.m.	79	1030.5
"	6 p.m.	80	1028
"	10.30 p.m.	82	1023
2	1.30 a.m.	83	1018
"	4.30 a.m.	84	1014
"	9 a.m.	87	1011
"	12 a.m.	88	1009
"	4.30 p.m.	89	1006
"	9 p.m.	89	1004.5

## No. 12 BACK.—PITCHED WITH No. 4 YEAST, 2 CWT.; No. 1 YEAST, 2 CWT.

1	4 p.m.	80	1033
"	10.30 p.m.	81	1028
2	1.30 a.m.	82	1023
"	4.30 a.m.	85	1018
"	9 a.m.	90	1011
"	12 a.m.	91	1008
"	4.30 p.m.	91	1004
"	9 p.m.	91	1003.5

No. 13 BACK.—PITCHED WITH No. 1 YEAST, 2 CWT.; No. 2 YEAST,  $2\frac{1}{2}$  CWT.

1	12 p.m.	78	1032
2	1.30 a.m.	78	1032
"	4.30 a.m.	80	1027
"	9 a.m.	86	1022
"	12 a.m.	88	1017
"	4.30 p.m.	91	1009
"	9 p.m.	92	1007.5

No. 14 BACK.—PITCHED WITH No. 2 YEAST,  $4\frac{1}{2}$  CWT.

1	6 a.m.	78	1034
"	10.30 a.m.	80	1032
"	12 a.m.	82	1029
"	4.30 p.m.	85	1022
"	9 a.m.	88	1015

The yeast outcrops from the four backs varied enormously, No. 11 giving 1 cwt.; No. 12,  $8\frac{1}{2}$  cwt.; No. 13 had not finished throwing up at 9 o'clock, but was expected to yield 8 cwt. or 9 cwt., whereas No. 14 had not begun to form a head, and had every appearance of turning out unsatisfactory. We are strongly of opinion that in the character of the yeast is to be found the solution of this difficulty. We mean by this, that whereas the wash, as at present collected, apparently suits such yeast as the one marked No. 1, probably a higher gravity would prove successful for other barm such as No. 2 and No. 3, which at present do not rise at all, or only with great difficulty. The firm in question obtain weekly about 50 tons of slumage, and even if the cooler deposit were pressed, it would retain something like 50 per cent. of its weight of wash. We think, however, that this difficulty might be easily overcome. We must now leave this very interesting subject of distilling, but readers who have carefully perused these and previous remarks in connection with mashing will be better able to understand the significance of our paper on the production of bakers' yeast, and they need not fear that there will be any evasion, any equivocation, any vacillation, or any hesitation on our behalf in trying to make the whole subject as clear as possible in the short space at our disposal.